

PATENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY
(Chapter II of the Patent Cooperation Treaty)

(PCT Article 36 and Rule 70)

REC'D 24 OCT 2005

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| Applicant's or agent's file reference 108682137691 | FOR FURTHER ACTION | | See Form PCT/IPEA/416 |
| International application No. PCT/US04/14146 | International filing date (day/month/year) 07 May 2004 (07.05.2004) | Priority date (day/month/year) 11 November 2003 (11.11.2003) | |
| International Patent Classification (IPC) or national classification and IPC IPC(7): F02D 41/00 and US Cl.: 123/543, 545, 546, 547, 672 | | | |
| Applicant VAPOR FUEL TECHNOLOGIES, INC. | | | |
| <p>1. This report is the international preliminary examination report, established by this International Preliminary Examining Authority under Article 35 and transmitted to the applicant according to Article 36.</p> <p>2. This REPORT consists of a total of <u>3</u> sheets, including this cover sheet.</p> <p>3. This report is also accompanied by ANNEXES, comprising:</p> <p>a. <input checked="" type="checkbox"/> (sent to the applicant and to the International Bureau) a total of <u>3</u> sheets, as follows:</p> <p><input type="checkbox"/> sheets of the description, claims and/or drawings which have been amended and are the basis of this report and/or sheets containing rectifications authorized by this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions).</p> <p><input type="checkbox"/> sheets which supersede earlier sheets, but which this Authority considers contain an amendment that goes beyond the disclosure in the international application as filed, as indicated in item 4 of Box No. I and the Supplemental Box.</p> <p>b. <input type="checkbox"/> (sent to the International Bureau only) a total of (indicate type and number of electronic carrier(s)) _____, containing a sequence listing and/or tables related thereto, in electronic form only, as indicated in the Supplemental Box Relating to Sequence Listing (see Section 802 of the Administrative Instructions).</p> <p>4. This report contains indications relating to the following items:</p> <p><input checked="" type="checkbox"/> Box No. I Basis of the report</p> <p><input type="checkbox"/> Box No. II Priority</p> <p><input type="checkbox"/> Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability</p> <p><input type="checkbox"/> Box No. IV Lack of unity of invention</p> <p><input checked="" type="checkbox"/> Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement</p> <p><input type="checkbox"/> Box No. VI Certain documents cited</p> <p><input type="checkbox"/> Box No. VII Certain defects in the international application</p> <p><input type="checkbox"/> Box No. VIII Certain observations on the international application</p> | | | |
| Date of submission of the demand 07 June 2005 (07.06.2005) | | Date of completion of this report 17 September 2005 (17.09.2005) | |
| Name and mailing address of the IPEA/US Mail Stop PCT, Attn: IPEA/US Commissioner for Patents P.O. Box 1450 Alexandria, Virginia 22313-1450 Facsimile No. (703) 305-3230 | | Authorized officer Yuen Henry Telephone No. (571) 272-4383 | |

Form PCT/IPEA/409 (cover sheet) (April 2005)

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INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.

PCT/US04/14146

Box No. I Basis of the report

1. With regard to the language, this report is based on:

- ☒ the international application in the language in which it was filed.
- ☐ a translation of the international application into English, which is the language of a translation furnished for the purposes of:
- ☐ international search (under Rules 12.3 and 23.1(b))
- ☐ publication of the international application (under Rule 12.4(a))
- ☐ international preliminary examination (under Rules 55.2(a) and/or 55.3(a))

2. With regard to the elements of the international application, this report is based on (*replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report*):

- ☐ the international application as originally filed/furnished
- ☒ the description:
- pages 1-8 as originally filed/furnished
- pages* NONE received by this Authority on _____
- pages* NONE received by this Authority on _____
- ☒ the claims:
- pages none as originally filed/furnished
- pages* NONE as amended (together with any statement) under Article 19
- pages* 9-10 received by this Authority on 11 May 2005 (11.05.2005)
- pages* NONE received by this Authority on _____
- ☒ the drawings:
- pages 1-4 as originally filed/furnished
- pages* NONE received by this Authority on _____
- pages* NONE received by this Authority on _____
- ☐ a sequence listing and/or any related table(s) - see Supplemental Box Relating to Sequence Listing.

3. ☐ The amendments have resulted in the cancellation of:

- ☐ the description, pages _____
- ☐ the claims, Nos. _____
- ☐ the drawings, sheets/figs _____
- ☐ the sequence listing (*specify*): _____
- ☐ any table(s) related to the sequence listing (*specify*): _____

4. ☐ This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).

- ☐ the description, pages _____
- ☐ the claims, Nos. _____
- ☐ the drawings, sheets/figs _____
- ☐ the sequence listing (*specify*): _____
- ☐ any table(s) related to the sequence listing (*specify*): _____

* If item 4 applies, some or all of those sheets may be marked "superseded."

Form PCT/IPEA/409 (Box No. I) (April 2005)

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INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.
PCT/US04/14146**Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement****1. Statement**

Novelty (N)

Claims 1-13 YESClaims NONE NO

Inventive Step (IS)

Claims 1-13 YESClaims NONE NO

Industrial Applicability (IA)

Claims 1-13 YESClaims NONE NO**2. Citations and Explanations (Rule 70.7)**

Claims 1-13 meet the criteria set out in PCT Article 33(2)-(3) because the prior art does not teach or fairly suggest the claimed invention.

Claims 1-13 meet the criteria set out in PCT Article 33(4) and thus have industrial applicability because the subject matter claimed can be made or used in industry.

----- NEW CITATIONS -----

NONE

4. (Original) A fuel supply assembly as defined in Claim 3 wherein said control comprises a sensor sensing combustion exhaust of said engine for determining the presence of hydrocarbons in said exhaust, said valve responsive to said sensor for modifying said intermixing and to thereby maintain a desired content of hydrocarbons in said exhaust.

5. (Original) A fuel supply assembly as defined in Claim 4 wherein said sensor senses O^2 emissions and said control determines the hydrocarbons based on the O^2 emissions.

6. (Original) A fuel supply assembly as defined in Claim 2 wherein a baffle arrangement in the tank directs air from said secondary source over the surface of the liquid fuel for stabilizing the temperature of said air as the air collects and conveys the vaporized fuel.

7. (Original) A fuel supply assembly as defined in Claim 1 wherein said fuel source assembly is provided as an alternate fuel source to said engine.

8. (Original) A fuel supply assembly as defined in Claim 7 wherein the fuel as vaporized produces a residual fuel portion and a control for selectively providing vaporized fuel or a liquid fuel to the combustion chamber, said residual fuel conveyed to said combustion chamber as liquid fuel.

9. (New) A fuel supply assembly for a gasoline fueled engine comprising:
a vaporizing tank containing a quantity of liquid gasoline fuel and a fuel supply supplying said liquid gasoline fuel to the vaporizing tank;
said liquid gasoline fuel having a composition wherein vaporization thereof readily/efficiently occurs in a major portion and not in a residual portion;
a vaporizing mechanism for vaporizing liquid gasoline supplied to the vaporizing tank that will readily/efficiently vaporize;

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Currently amended) A fuel supply assembly for a gasoline fueled engine including a combustion chamber for combusting fuel, and an exhaust for the combusted fuel, which assembly comprises:

a vaporizing tank, a quantity of liquid gasoline fuel contained in the tank, a heating source for heating the liquid gasoline fuel, and a temperature control for controlling the temperature of the liquid gasoline fuel as contained in the tank;

said temperature control maintaining the temperature of the liquid gasoline fuel at a determined temperature to produce vaporization of the fuel which rises from the surface of the liquid, a conduit arrangement conveying the vaporized gasoline fuel from the tank, a primary source of ambient air mixed with the vaporized gasoline fuel conveyed by said conduit arrangement and said conduit arrangement conveying the intermixed ambient air and vaporized fuel to the engine for combustion; and

an automatic control substantially continuously monitoring the engine exhaust during operation of the engine and controlling the intermixing of the ambient air and vaporized gasoline fuel to maintain a desired hydrocarbon level in the exhaust throughout environmental and load demand conditions.

2. (Original) A fuel supply assembly as defined in Claim 1 wherein a secondary source of the ambient air is directed into and through the tank for collecting and conveying an enriched vaporized air and fuel mixture into the conduit to be thereafter combined with the primary source of ambient air.

3. (Original) A fuel supply assembly as defined in Claim 2 wherein a valve is provided for one or both of the primary source of ambient air and enriched vaporized gasoline fuel and air mixture, said one or both valves controlling the intermixing of said primary ambient air and vaporized gasoline and air mixture.

a first conduit arrangement conveying vaporized gasoline fuel from the tank to the engine; and

a purging conduit arrangement for periodic purging of the residual portion of the gasoline.

10. (New) A fuel supply assembly as defined in Claim 9 wherein an alternate fuel source provides fuel to the engine during the purging process.

11. (New) A fuel supply assembly as defined in Claim 10 wherein the engine is adapted to alternatively receive vaporized fuel and liquid fuel, said purging conduit arrangement providing said residual liquid fuel to said engine as the alternate fuel source.

12. (New) A fuel supply assembly as defined in Claim 9, including a storage tank, said purging conduit conveying said residual fuel to said storage tank for alternate use.

13 (New) A fuel supply assembly as defined in Claim 11, including a recycle control for a) vaporizing a portion of the liquid gasoline supplied to the vaporizing tank that will readily/efficiently vaporize while running the engine on vaporized fuel; and b) switching engine operation to liquid fuel operation for purging the tank.